

Technical Attachment

GFE Forecast Monitor

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1. Introduction

The Graphical Forecast Editor (GFE) is a tool utilized by forecast offices across the National Weather Service (NWS) to produce gridded forecasts of weather parameters, such as temperature, dewpoint, wind direction and speed, etc. with temporal resolution of up to one hour. The gridded GFE forecasts are used to produce alphanumeric products, such as the Zone Forecast Product and graphical forecasts which are made available through the Internet. Because these products are used by the public, the media, emergency managers, etc., they should be continuously monitored and updated as necessary to reflect current as well as forecast conditions.

2. Purpose

The GFE Forecast Monitor (GFM) program was developed to assist forecasters by comparing their forecasts for specified grid boxes to the latest available observations within those grid boxes. The GFM will alert the forecaster whenever the difference between the forecast and observed values exceeds locally defined thresholds for each parameter. The software also allows forecasters to review past forecasts and compare them to archived observations. The archived data can be used by the forecaster as a verification tool to improve future forecast performance.

3. Data

The forecast data used by the GFM are produced by a text formatter called HourlyData which is run for each grid point that corresponds to the location of an observation site. The observation data are obtained from either: Automated Surface Observation Systems (ASOS), Automated Weather Observation Systems (AWOS), or AWS Weather Bug* sites (Fig. 1). Eventually, data from Remote Automated Weather Systems (RAWS) will be available.

** NOTE: Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement by the National Weather Service, NOAA or the Department of Commerce, and does not imply approval to the exclusion of other suitable products or firms.*

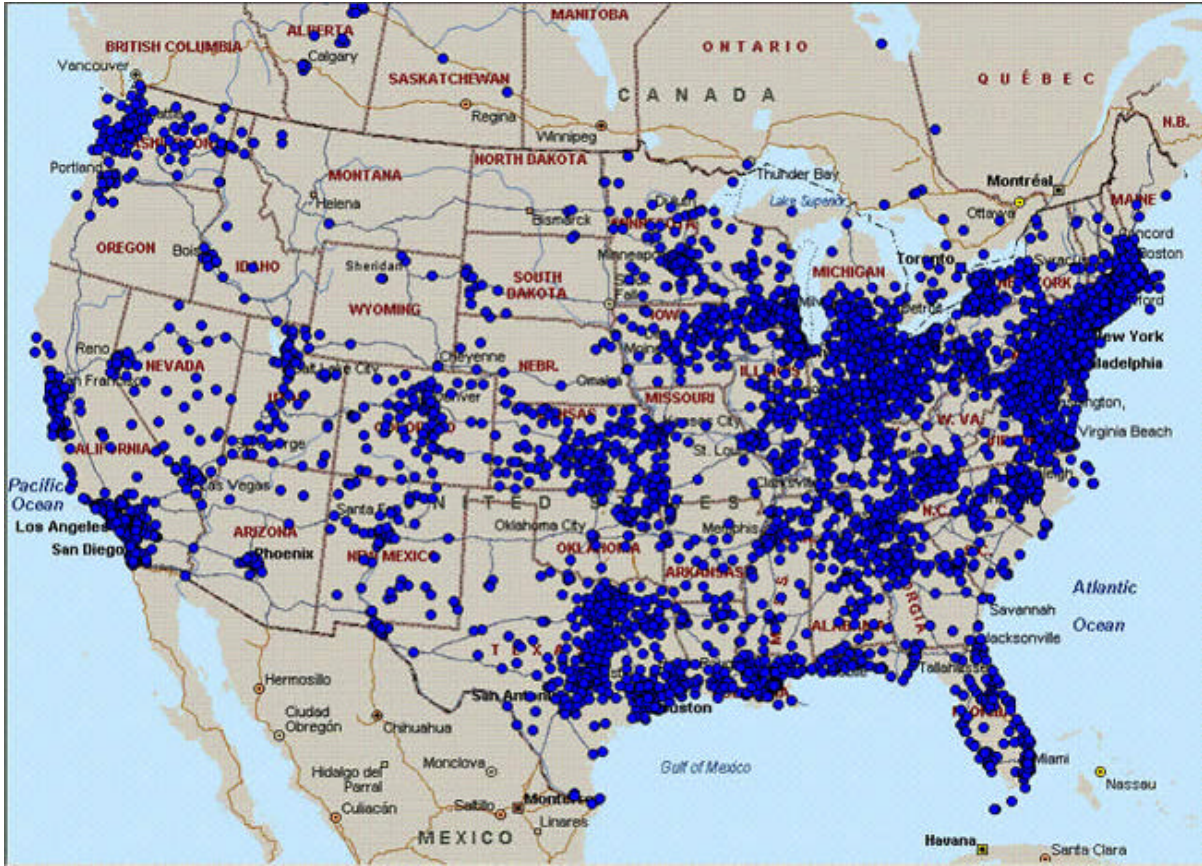


Figure 1. Location of AWS Weather Bug sites across the CONUS and southern Canada.

4. GFE Forecast Monitor

The GFM interface (Fig. 2) displays a list of stations on the left (TYS is the Knoxville, Tenn. airport) with six boxes on the right depicting the status of the temperature, dewpoint, relative humidity, wind, clouds, and sensible weather forecasts. The first number in each box is the current observation and the second number is the corresponding forecast. The boxes are color coded based on the difference between the observation and the forecast.

The GFM interface allows forecasters to change the thresholds at which the difference between the observed and forecast conditions is flagged. Similarly, the forecaster can also assign colors to the various thresholds (Fig. 3). The forecaster can retrieve the current ASOS, AWOS, or AWS observation by hovering the mouse over the station identifier.

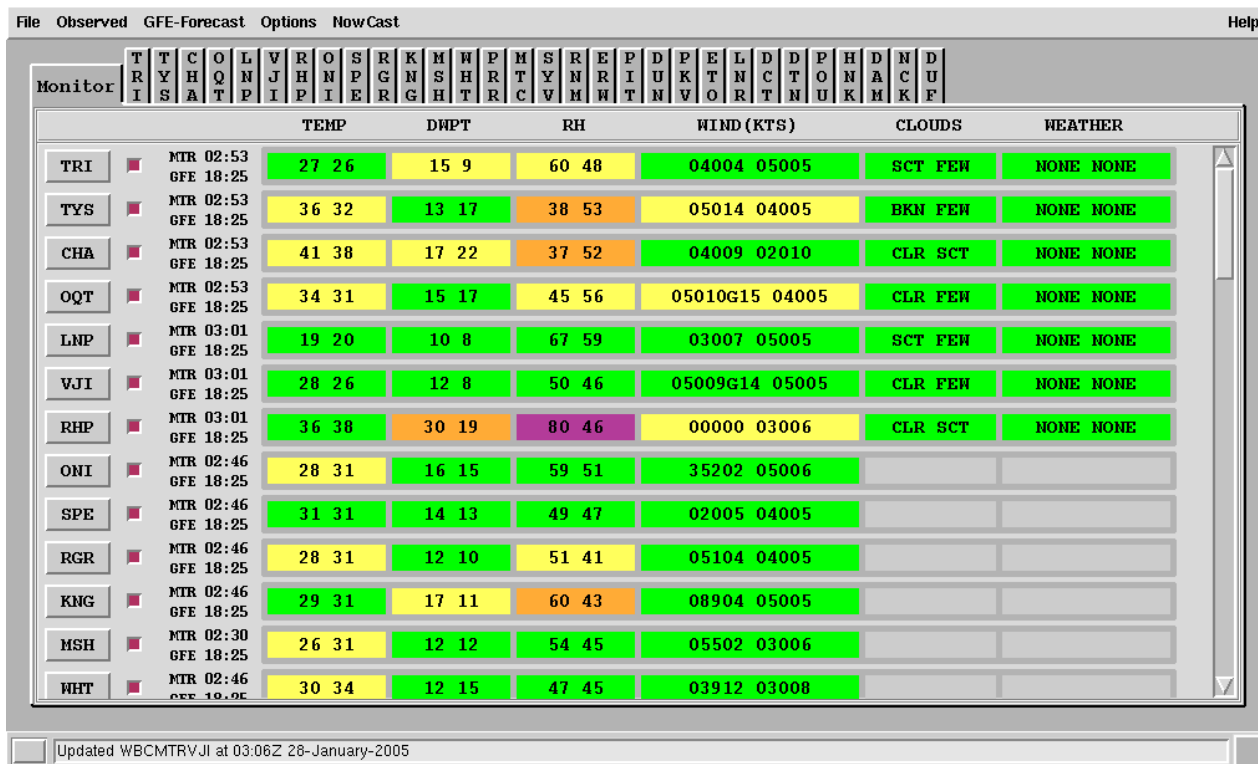


Figure 2. Example of the GFE Forecast Monitor. Station identifiers are in the leftmost column. The first number in each color box is the observed value and the second number is the GFE forecast for that hour, with colors based on the difference between them.

	Temp	Dewpoint	RH	Direction	Speed	Clouds	Weather
Threshold:	3	5	10	45	5	2	1
Threshold:	6	10	15	90	10	2	2
Threshold:	9	15	20	135	15	3	3
Threshold:	12	20	25	180	20	4	4

Ok

Figure 3. Example of the GFM threshold configuration interface.

5. Hourly Plot of Observed and Forecast Values

Another feature of the GFM program allows the forecaster to plot hourly meteorograms of observed and/or forecast parameters (Fig. 4): temperature, dewpoint, temperature and wind, and relative humidity.

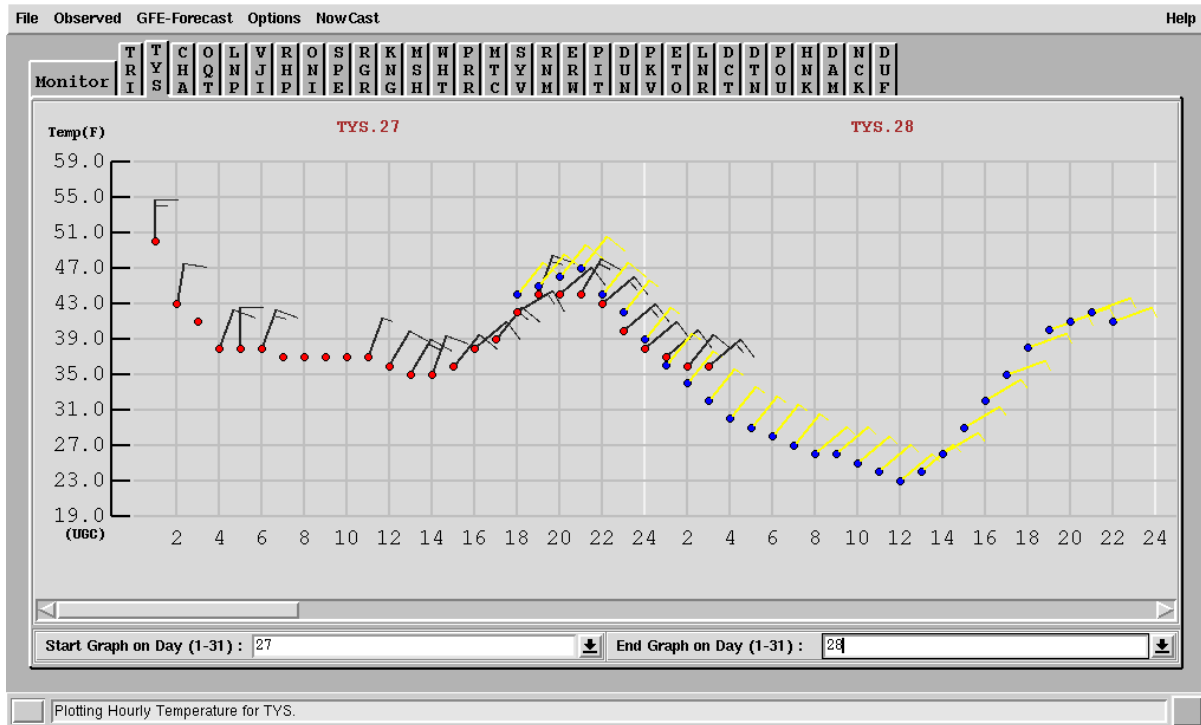


Figure 4. Meteorogram of temperature and wind for TYS (Knoxville, Tenn., airport) for the 27th through the 28th. The vertical axis is the temperature and the horizontal axis is the UTC time. The red dots and black wind flags are the observations from TYS, while the blue dots and yellow flags represent the current hourly forecasts.

The GFM also allows the user to review previous forecasts by selecting from archived files (Fig. 5). The archive plot will display the observation along with the past archived hourly GFE forecast (Fig. 6).

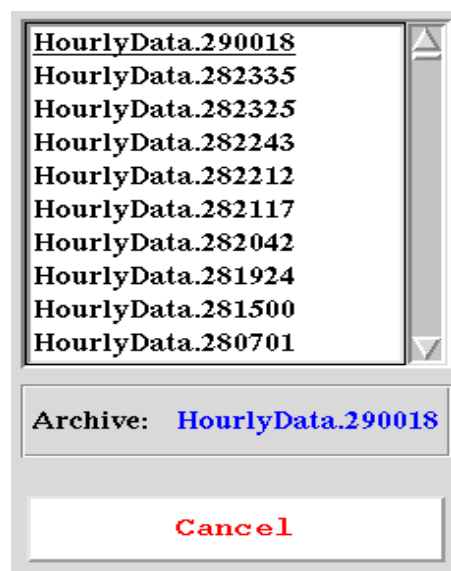


Figure 5. GFM Archived Forecasts and Observations Interface.

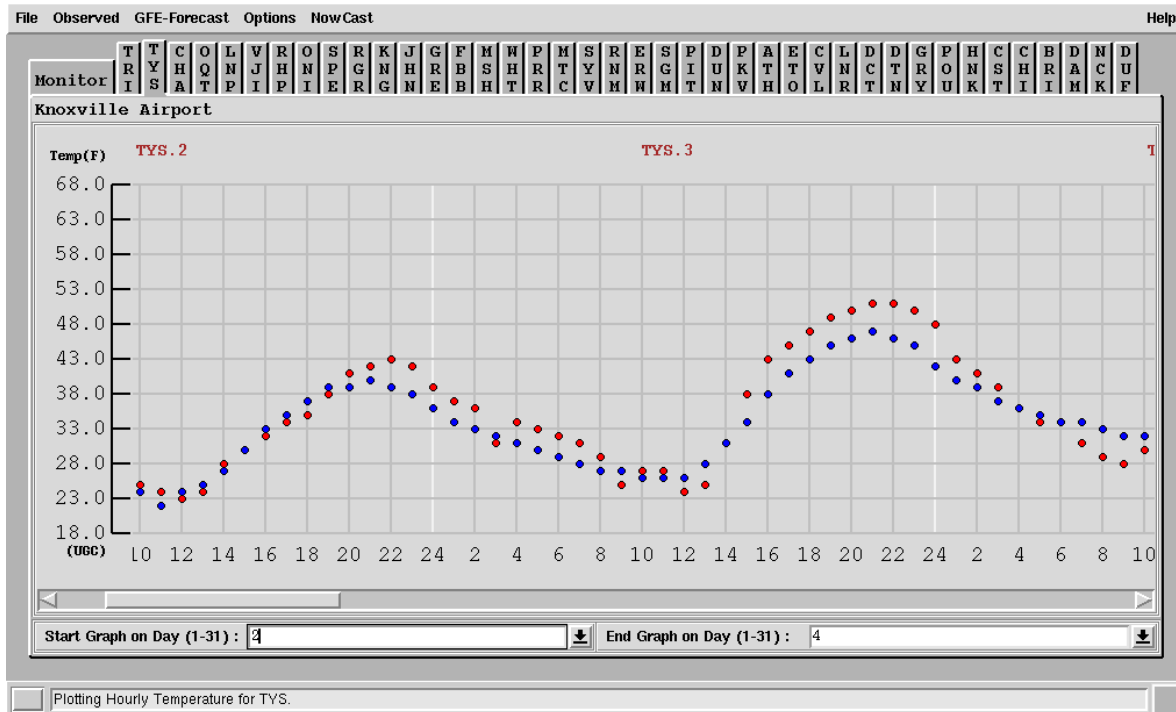


Figure 6. Meteorogram of temperature and wind for TYS (Knoxville, Tenn., airport) for January 2nd and 4th. The vertical axis is the temperature and the horizontal axis shows the UTC time. The red dots are the observations from TYS, while the blue dots represent the archived hourly forecasts.

6. Concluding Remarks

The GFE Forecast Monitor is available from the NWS AWIPS Local Applications Database (LAD) Web site. If you wish to link directly to this application from outside the LAD use the following URL:

<http://www.mdl.nws.noaa.gov/~applications/LAD/site.php3?appnum=1499>

If you have any questions about the GFM program, please feel free to call or email the developers.